

AMENDMENT UNDER 37 C.F.R. § 1.116
U.S. Application No. 09/698,143
Attorney Docket No. Q60866

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): An ink cartridge for use in an ink jet recording apparatus comprising:

a container body having an ink chamber and an opening portion wherein an ink absorbing member for absorbing ink is housed in said ink chamber;

an ink supply port which communicates said ink chamber to a recording head;

a lid member sealing said opening portion of said container body; and

a spacer, which is disposed between said lid member and said ink absorbing member and is separate from said lid member, wherein said spacer has a base portion which faces said lid member, and a pressing portion which is substantially perpendicular to said base portion and extends from said base portion toward said ink absorbing member for pressing said ink absorbing member toward said ink supply port.

2. (previously presented): An ink cartridge for use in an ink jet recording apparatus comprising:

a container body housing an ink absorbing member for absorbing ink in an ink chamber;

an ink supply port which communicates said ink chamber to a recording head;

a lid member sealing an opening portion of said container body; and

a spacer inserted between said lid member and said ink absorbing member for pressing said ink absorbing member toward said ink supply port;

wherein an ink injecting port and an air communicating port are formed in said lid member, and through holes are formed in said spacer so as to be opposed at least to said ink injecting port.

3. (previously presented): The ink cartridge for use in an ink jet recording apparatus according to claim 1, wherein a plurality of through holes are provided so as to oppose an injecting port independent of an extension direction of said spacer and so as to be symmetric with respect to each other.

4. (previously presented): The ink cartridge for use in an ink jet recording apparatus according to claim 1, wherein said spacer presses said ink absorbing member toward said ink supply port at least at an area where said ink absorbing member opposes said ink supply port.

5. (previously presented): The ink cartridge for use in an ink jet recording apparatus according to claim 1, wherein said pressing portion comprises a rib extending to a longitudinal direction of said container body at an opposite side to said ink absorbing member.

6. (previously presented): The ink cartridge for use in an ink jet recording apparatus according to claim 1, wherein a projection engaging with said lid member is formed in said base portion.

7. (previously presented): The ink cartridge for use in an ink jet recording apparatus according to claim 1, wherein said pressing portion comprises plural ribs extending to a longitudinal direction of said container body, and each of said plural ribs is joined to each other.

8. (previously presented): The ink cartridge for use in an ink jet recording apparatus according to claim 1, wherein said pressing portion comprises ribs which are positioned at both sides of said container body in a width direction.

9. (currently amended): ~~The ink cartridge for use in an ink jet recording apparatus according to claim 1,~~ An ink cartridge for use in an ink jet recording apparatus comprising:
a container body having an ink chamber and an opening portion wherein an ink absorbing member for absorbing ink is housed in said ink chamber;
an ink supply port which communicates said ink chamber to a recording head;
a lid member sealing said opening portion of said container body; and
a spacer, which is disposed between said lid member and said ink absorbing member and is separate from said lid member, wherein said spacer has a base portion which faces said lid

member, and a pressing portion for pressing said ink absorbing member toward said ink supply port,

wherein a convex portion is formed at said ink supply port, said convex portion protrudes from a bottom of said container body and has an ink flow path communicating with said ink supply port, and said pressing portion comprises ribs which contact with said ink absorbing member at an area of said ink absorbing member which does not oppose said ink flow path.

10. (previously presented): The ink cartridge for use in an ink jet recording apparatus according to claim 5, wherein projections are formed at corners of said base portion in a longitudinal direction so as to contact with an inside of said ink container body.

11. (previously presented): The ink cartridge for use in an ink jet recording apparatus according to claim 1, wherein said spacer comprises ribs extending to a longitudinal direction of said container body at the opposite side to said ink absorbing member, and said ribs are provided with a convex portion at an area of said ink absorbing member which opposes said ink supply port.

12. (previously presented): The ink cartridge for use in an ink jet recording apparatus according to claim 1, wherein said pressing portion comprises a projection for pressing said ink absorbing member toward said ink supply port.

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13. (currently amended): ~~The ink cartridge for use in an ink jet recording apparatus according to claim 1,~~ An ink cartridge for use in an ink jet recording apparatus comprising:
a container body having an ink chamber and an opening portion wherein an ink absorbing member for absorbing ink is housed in said ink chamber;
an ink supply port which communicates said ink chamber to a recording head;
a lid member sealing said opening portion of said container body; and
a spacer, which is disposed between said lid member and said ink absorbing member and is separate from said lid member, wherein said spacer has a base portion which faces said lid member, and a pressing portion for pressing said ink absorbing member toward said ink supply port,

wherein said container body is divided into a plurality of ink chambers by walls, each of said plurality of ink chambers communicating with said ink supply port, and each of said plurality of ink chambers is provided with said ink absorbing member and said spacer.

14. (currently amended): An ink cartridge for use in an ink jet recording apparatus comprising:
a container body having an ink absorbing member for absorbing ink in an ink chamber;
an ink supply port which communicates said ink chamber to a recording head;
wherein an internal space of said container body is divided into a plurality of discrete areas by walls,

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wherein at least one of said discrete areas stores ink and at least one of said discrete areas is isolated from the stored ink, and

wherein only said at least one of said discrete areas storing ink is provided with said ink supply port and said ink absorbing member.

15. (previously presented): The ink cartridge for use in an ink jet recording apparatus according to claim 14, wherein said internal space of said container body is divided by first walls perpendicular to an ink supply needles arrangement direction into chambers, each of said chambers is opposed to each ink supply needle, and said chambers are divided by a second wall perpendicular to the first walls.

16. (currently amended): An ink cartridge for use in an ink jet recording apparatus, comprising:

a container body having ~~an~~ a plurality of ink absorbing ~~member~~ members for absorbing ink in ~~an~~ a plurality of ink-chamber ~~chambers~~;

ink supply ports which communicate ~~said~~ each ink chamber to a recording head;

wherein an internal space of said container body is divided into a first divided chamber and a second divided chamber by an area wall parallel to an ink supply ports arrangement direction, said first divided chamber being isolated from said second divided chamber by said area wall,

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wherein said first divided chamber is further divided into a plurality of discrete areas by chamber walls perpendicular to said area wall, and each of said discrete areas is provided with one of said ink supply ports,

wherein said second divided chamber contains one of reserve ink and maintenance liquid, and

wherein said reserve ink is supplied to said recording head or said maintenance liquid is used during a maintenance operation of said recording head.

17. (currently amended): ~~The ink cartridge for use in an ink jet recording apparatus according to claim 14,~~ An ink cartridge for use in an ink jet recording apparatus comprising:
a container body having an ink absorbing member for absorbing ink in an ink chamber;
an ink supply port which communicates said ink chamber to a recording head;
wherein an internal space of said container body is divided into a plurality of areas by
walls,
wherein at least one of said areas stores ink and at least one of said areas is isolated from
the stored ink,
wherein only said at least one of said areas storing ink is provided with said ink supply
port and said ink absorbing member, and

wherein one of said areas which has no ink supply ports is open to outside of said container body, and said container body is installed in an air tight and gas impermeable package so as to maintain a pressure lower than atmospheric pressure.

18. (previously presented): An ink cartridge system, comprising:
- a container body having an ink chamber;
 - an ink supply port which communicates said ink chamber to a recording head;
 - a first lid member adapted to seal an opening portion of said container body, wherein first ribs are formed in the back of the first lid member;
 - a first ink absorbing member adapted to absorb ink in said ink chamber when said first lid member seals said opening portion of said container body;
 - a second lid member adapted to seal said opening portion of said container body, wherein second ribs are formed in the back of the second lid member;
 - a second ink absorbing member adapted to absorb ink in said ink chamber when said second lid member seals said opening portion of said container body;
- wherein, when said first lid member seals said opening portion of said container body, said first ribs oppose said ink supply port and press the first ink absorbing member toward said ink supply port,
- wherein, when said second lid member seals said opening portion of said container body, said second ribs oppose said ink supply port and press the second ink absorbing member toward said ink supply port,
- wherein a first rib height of said first ribs is different than a second rib height of said second ribs, and

wherein a first member volume of said first ink absorbing member is different than a second member volume of said second ink absorbing member.

19. (canceled).

20. (previously presented): An ink cartridge for use in an ink jet recording apparatus, comprising:

a container body having a first side wall, a second side wall, a third side wall, and a bottom wall, wherein said container houses an ink absorbing member for absorbing ink in an ink chamber;

an ink supply port which communicates said ink chamber to a recording head, wherein said ink supply port is formed on the bottom wall and is positioned close to the first wall;

a concave portion formed at the second side wall so as to protrude to said ink chamber;

at least one rib formed at said concave portion so as to be parallel to the third side wall and to protrude to said ink supply port; and

an ink absorbing member comprising an elastic ink absorbing member, wherein said ink absorbing member is supported by said first side wall and said rib, and has a length corresponding to said ink chamber regulated by said rib.

21. (original): The ink cartridge for use in an ink jet recording apparatus according to claim 20, wherein said ink absorbing member is pressed by the lid member composing said container body at an ink discharge port communicating with said ink supply port.

22. (original): The ink cartridge for use in an ink jet recording apparatus according to claim 20, wherein said container body is divided into a plurality of ink chambers by partition portions, and said concave portion is formed to straddle said partition portions.

23. (previously presented): The ink cartridge for use in an ink jet recording apparatus according to claim 20, wherein ribs protruding from the second side wall are formed on said ink chambers partitioned by partition walls of said container body.

24. (original): The ink cartridge for use in an ink jet recording apparatus according to claim 20, wherein a protruded length of said ribs is adjusted according to the amount of ink to be stored.

25. (original): The ink cartridge for use in an ink jet recording apparatus according to claim 20, wherein said concave portion functions to position said container body against said holder.

26. (canceled).

27. (currently amended): ~~The ink cartridge for use in an ink jet recording apparatus according to claim 26,~~ An ink cartridge for use in an ink jet recording apparatus comprising:
a container body having a first side wall and a bottom wall, wherein where the first side wall and the bottom wall join, a protruding portion is formed to protrude into said container body;
an ink absorbing member for absorbing ink is housed in an ink chamber;
an ink supply port which communicates said ink chamber to a recording head, wherein said ink supply port is formed on the bottom wall; and
a lid member sealing an opening portion of said container body,
wherein a bottom portion of the side wall in said container body protrudes to the ink chamber.

28. (currently amended): ~~An ink cartridge for use in an ink jet recording apparatus according to claim 26,~~ An ink cartridge for use in an ink jet recording apparatus comprising:
a container body having a first side wall and a bottom wall, wherein where the first side wall and the bottom wall join, a protruding portion is formed to protrude into said container body;
an ink absorbing member for absorbing ink is housed in an ink chamber;
an ink supply port which communicates said ink chamber to a recording head, wherein said ink supply port is formed on the bottom wall; and

a lid member sealing an opening portion of said container body,
wherein said container body has a second side wall which is shorter than said first side wall.

29. (currently amended): ~~The ink cartridge for use in an ink jet recording apparatus according to claim 26,~~ An ink cartridge for use in an ink jet recording apparatus comprising:

a container body having a first side wall and a bottom wall, wherein where the first side wall and the bottom wall join, a protruding portion is formed to protrude into said container body;

an ink absorbing member for absorbing ink is housed in an ink chamber;

an ink supply port which communicates said ink chamber to a recording head, wherein said ink supply port is formed on the bottom wall; and

a lid member sealing an opening portion of said container body,

wherein said protruded portion includes a sloping portion.

30. (currently amended): ~~The ink cartridge for use in an ink jet recording apparatus according to claim 26,~~ An ink cartridge for use in an ink jet recording apparatus comprising:

a container body having a first side wall and a bottom wall, wherein where the first side wall and the bottom wall join, a protruding portion is formed to protrude into said container body;

an ink absorbing member for absorbing ink is housed in an ink chamber;

an ink supply port which communicates said ink chamber to a recording head, wherein said ink supply port is formed on the bottom wall; and

a lid member sealing an opening portion of said container body,

wherein said ink absorbing member is strongly compressed at a central area of a bottom portion of said ink chamber.

31. (currently amended): ~~The ink cartridge for use in an ink jet recording apparatus according to claim 26,~~ An ink cartridge for use in an ink jet recording apparatus comprising:

a container body having a first side wall and a bottom wall, wherein where the first side wall and the bottom wall join, a protruding portion is formed to protrude into said container body;

an ink absorbing member for absorbing ink is housed in an ink chamber;

an ink supply port which communicates said ink chamber to a recording head, wherein said ink supply port is formed on the bottom wall; and

a lid member sealing an opening portion of said container body,

wherein said ink supply port communicates with a concave portion formed at a projection extending from a substantially central portion of the bottom wall.

32. (previously presented): An ink cartridge for use in an ink jet recording apparatus comprising:

a container body housing an ink absorbing member for absorbing ink in an ink chamber;

an ink supply port which communicates said ink chamber to a recording head;
a lid member sealing an opening portion of said container body; and
a spacer inserted between said lid member and said ink absorbing member for pressing
said ink absorbing member toward said ink supply port; and
wherein a storage device storing information regarding an ink stored amount is attached
so as to be readable by a recording apparatus.

33. (previously presented): The ink cartridge for use in an ink jet recording apparatus
according to claim 14, wherein at least one of said areas storing ink is provided with said ink
supply port, and a storage device storing information regarding an ink stored amount is attached
so as to be readable by a recording apparatus.

34. (previously presented): An ink cartridge for use in an ink jet recording apparatus
comprising:

a container body having an ink absorbing member for absorbing ink in an ink chamber;
an ink supply port which communicates said ink chamber to a recording head;
a lid member sealing an opening portion of said container body; and
ribs formed in the back of the lid member so as to be opposed to said ink supply port and
to press the ink absorbing member toward said ink supply port according to a height of the ink
absorbing member, wherein ink volume is adjusted according to the volume of said ink

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absorbing member, and a storage device storing information regarding an ink stored amount is attached so as to be readable by a recording apparatus.

35. (currently amended): ~~The ink cartridge for use in an ink jet recording apparatus according to claim 19,~~ An ink cartridge for use in an ink jet recording apparatus, comprising:

a container body installed in a holder of the ink jet recording apparatus having an ink absorbing member for absorbing ink in an ink chamber;

an ink supply port which communicates said ink chamber to a recording head, wherein said ink supply port is formed on a bottom wall of said container body;

a concave portion formed on a side wall of said container body and extending from the bottom wall of said container body, wherein said concave portion protrudes into said ink chamber; and

a wall partitioning said ink chamber, wherein said wall is positioned inside of the side wall in contact with the holder,

wherein a storage device storing information regarding an ink stored amount is attached so as to be readable by a recording apparatus.

36. (original): The ink cartridge for use in an ink jet recording apparatus according to claim 20, wherein a storage device storing information regarding ink stored amount is attached so as to be readable by a recording apparatus.

37. (currently amended): ~~The ink cartridge for use in an ink jet recording apparatus according to claim 26,~~ An ink cartridge for use in an ink jet recording apparatus comprising:

a container body having a first side wall and a bottom wall, wherein where the first side wall and the bottom wall join, a protruding portion is formed to protrude into said container body;

an ink absorbing member for absorbing ink is housed in an ink chamber;

an ink supply port which communicates said ink chamber to a recording head, wherein said ink supply port is formed on the bottom wall; and

a lid member sealing an opening portion of said container body,

wherein a storage device storing information regarding ink stored amount is attached so as to be readable by a recording apparatus.

38. (previously presented): The ink jet cartridge for use in an ink jet recording apparatus according to claim 20, wherein a width of the ink chamber is narrower than a width of the second side wall of the ink chamber.

39. (previously presented): The ink jet cartridge for use in an ink jet recording apparatus according to claim 20, wherein a width measured in a direction parallel to the second side wall of the ink chamber is wide at an opening portion of the container body and narrow at an ink supply port side of the container body.

40. (previously presented): The ink cartridge system as claimed in claim 18, wherein said first rib height is smaller than said second rib height, and wherein said first member volume is greater than said second member volume.

41. (previously presented): The ink cartridge system as claimed in claim 40, wherein a first member height of said first ink absorbing member is greater than a second member height of said second ink absorbing member.

42. (previously presented): A method for manufacturing an ink cartridge, comprising:
(a) providing a container body having an ink chamber, and opening portion, and an ink supply port, wherein said ink supply port communicates said ink chamber to a recording head;

(b) determining whether said ink cartridge will have a first ink capacity to accommodate a first volume of ink or will have a second ink capacity to accommodate a second volume of ink that is different than the first volume of ink;

(c) when said ink cartridge will have said first ink capacity, disposing a first ink absorbing member in said ink chamber, wherein said first ink absorbing member has a first member volume;

(d) when said ink cartridge will have said first ink capacity, sealing said opening portion of said container body with a first lid member,

wherein first ribs are formed in the back of said first lid member, oppose said ink supply port, and press the first ink absorbing member toward said ink supply port and wherein said first ribs have a first rib height;

(e) when said ink cartridge will have said second ink capacity, disposing a second ink absorbing member in said ink chamber, wherein said second ink absorbing member has a second member volume that is different than said first member volume;

(f) when said ink cartridge will have said second ink capacity, sealing said opening portion of said container body with a second lid member,

wherein second ribs are formed in the back of said second lid member, oppose said ink supply port, and press the second ink absorbing member toward said ink supply port, and

wherein said second ribs have a second rib height that is different than said first rib height.

43. (previously presented): The method as claimed in claim 42, wherein said first rib height is smaller than said second rib height, and

wherein said first member volume is greater than said second member volume.

44. (previously presented): The method as claimed in claim 43, wherein a first member height of said first ink absorbing member is greater than a second member height of said second ink absorbing member.

45. (previously presented): An ink cartridge for use in an ink jet recording apparatus comprising:

a container body having an ink chamber;
an ink supply port which communicates said ink chamber to a recording head;
the internal space of said container body divided into a plurality of areas by walls; and
a storage device storing information regarding an ink stored amount is attached so as to be readable by a recording apparatus,

wherein at least one of said areas stores ink and at least another one of said areas is isolated from and does not store the ink, and

wherein only said at least one of said areas storing ink is provided with said ink supply port.

46. (previously presented): An ink cartridge for use in an ink jet recording apparatus comprising:

a container body installed in a holder of the ink jet recording apparatus having an ink chamber;

an ink supply port which communicates said ink chamber to a recording head;

a concave portion formed on a side wall of said container body and extending from the bottom wall of said container body, wherein said concave portion protrudes into said ink chamber; and

a wall partitioning said ink chamber positioned inside a side portion in contact with said holder;

wherein a storage device storing information regarding an ink stored amount is attached so as to be readable by a recording apparatus.

47. (canceled).

48. (previously presented): The ink cartridge for use in an ink jet recording apparatus, according to claim 16, wherein each chamber is supplied with at least one ink supply port.

49. (currently amended): The ink cartridge for use in an ink jet recording apparatus, according to ~~claim 16~~ claim 48, wherein said reserve ink is supplied to said recording head by re-inserting the ink cartridge into the ink jet recording apparatus in a second direction, said second direction is different from a first direction in which the ink cartridge is inserted into the ink jet recording apparatus to supply said ink to said recording head.

50. (currently amended): The ink cartridge for use in an ink jet recording apparatus, according to ~~claim 16~~ claim 49, wherein said second direction is opposite to said first direction.